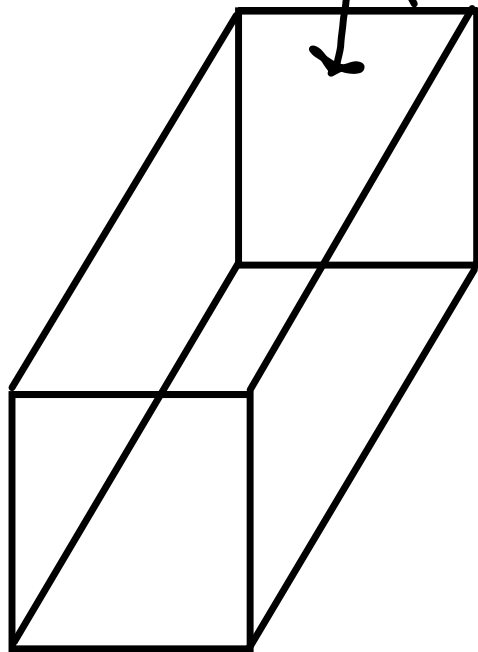


①  $V = 500 \text{ ft}^3$      $A = lw + 2lh + 2wh$      $L = 10 \text{ ft}$   
 $x \cdot x \cdot h = 500$      $= x^2 + 2x \frac{500}{x} + 2x \frac{500}{x^2}$      $W = 10 \text{ ft}$   
 $\frac{500}{x^2} = h$      $SA = x^2 + \frac{2000}{x}$      $H = 5 \text{ ft}$   
 $x = 1/w$      $SA' = 2x - \frac{2000}{x^2}$      $\emptyset = \frac{2x^3 - 2000}{x^2}$



$0 = 2x - \frac{2000}{x^2}$   
 $11$

$$2x^3 - 2000 = 0$$

$$2x^3 = 2000$$

$$x^3 = 1000$$

$$x = 10$$

$$\textcircled{7} \quad 8r^2 + 2\pi r h$$

$$A = 8r^2 + 2\pi r \left( \frac{1000}{\pi r^2} \right)$$

$$= 8r^2 + \frac{2000}{r}$$

$$A' = 16r + (-2000r^{-2})$$

$$= \frac{16r^3}{r^2} - \frac{2000}{r^2}$$

$$= \frac{16r^3 - 2000}{r^2}$$

$$16r^3 - 2000 = 0$$

$$16r^3 = 2000$$

$$r^3 = \frac{2000}{16}$$

$$r = \sqrt[3]{\frac{2000}{16}}$$

$$r = 5$$

$$1000 = \pi r^2 h$$

$$h = \frac{1000}{\pi r^2}$$

$$h = \frac{1000}{\pi r^2}$$

$$= \frac{1000}{25\pi} = \frac{40}{\pi} \text{ cm}$$

$$h = \frac{40}{\pi} \text{ cm}$$

$$r = 5 \text{ cm}$$

$$\text{ratio } \frac{8}{\pi} \text{ to } 1$$

19) a)  $V = lwh$   $l = 36 - 4x$   $w = 24 - 2x$   $h = x$

$$V = (36 - 4x)(24 - 2x)x$$

b)  $[0, 9)$

c)

d)  $V = (36 - 4x)(24 - 2x)x$   
 $= (864 - 72x - 96x + 8x^2)x$   
 $= 864x - 168x^2 + 8x^3$

$$V' = 864 - 336x + 24x^2$$

$$24x^2 - 336x + 864 = 0$$

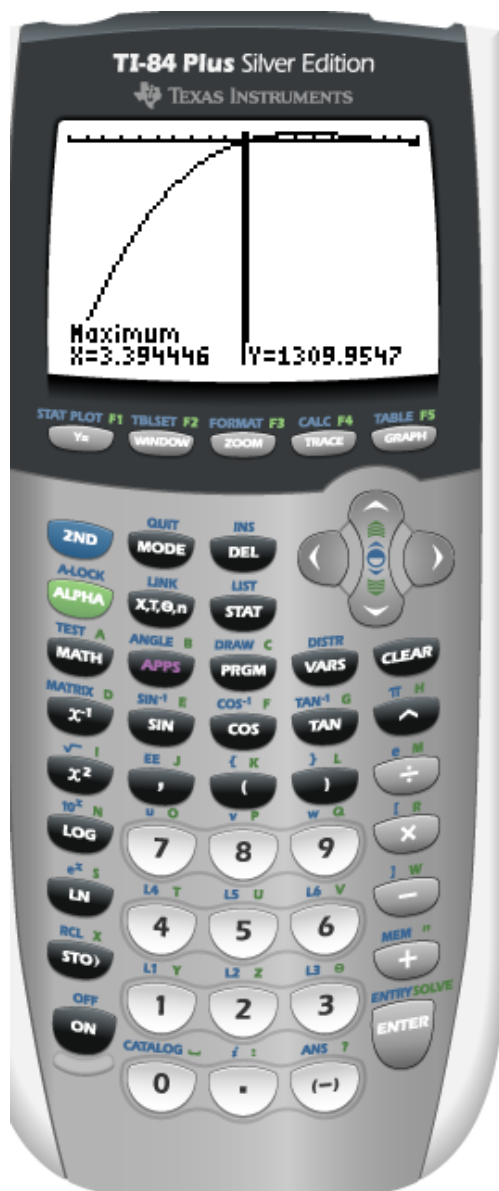
$$(x^2 - 14x + 36) = 0$$

$$x = \frac{-b \pm \sqrt{b^2 - 4ac}}{2a}$$

$$= \frac{14 \pm \sqrt{196 - 144}}{2} = \frac{14 \pm \sqrt{52}}{2}$$

$$= 10.6$$

$$= 3.4 \text{ in}$$



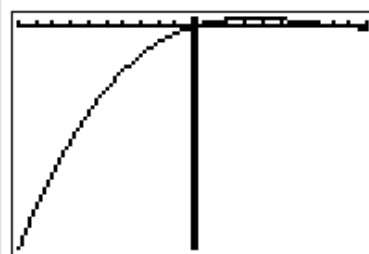
Plot2 Plot3  
Y1=(36-4X)(24-2X)  
Y2=  
Y3=  
Y4=  
Y5=  
Y6=

Equation

X	Y1	
16	3584	
17	5440	
18	7776	
19	10640	
20	14080	
21	18144	
22	22880	

X=16

Table



Graph

Key Press History Large Screen

Y= CLEAR ( 3 6 -  
4 X,T,θ,n ) ( 2 4  
- 2 X,T,θ,n ) X,T,θ,n GRAPH  
ZOOM 0 2nd TRACE 4 )  
) ) ) ENTER ) )  
) ) ) ) ) )  
) ) ) ) ) )  
ENTER ENTER

Clear Key Press History